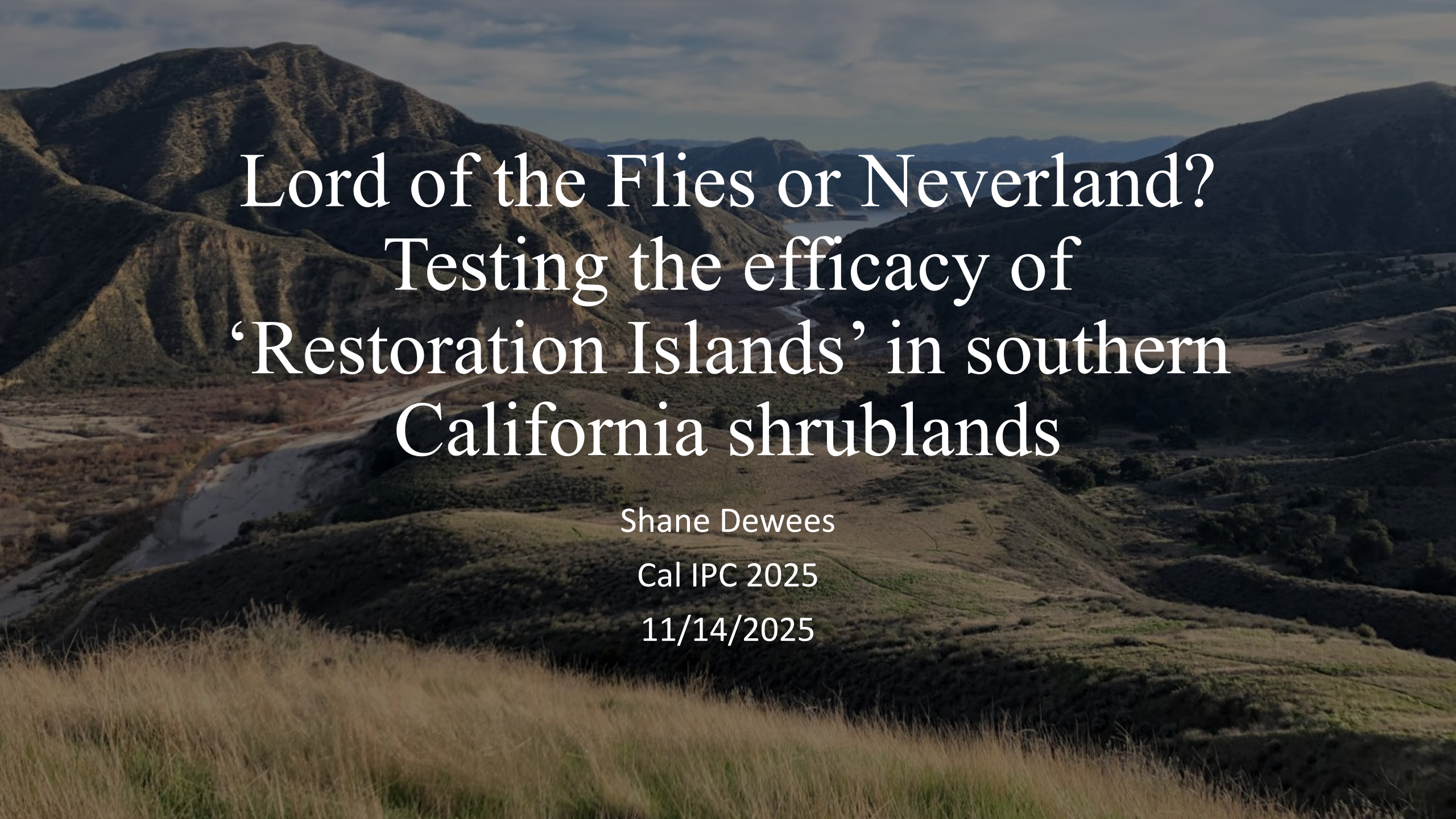

Lord of the Flies or Neverland? Testing the efficacy of ‘Restoration Islands’ in southern California shrublands

Shane Dewees

Cal IPC 2025

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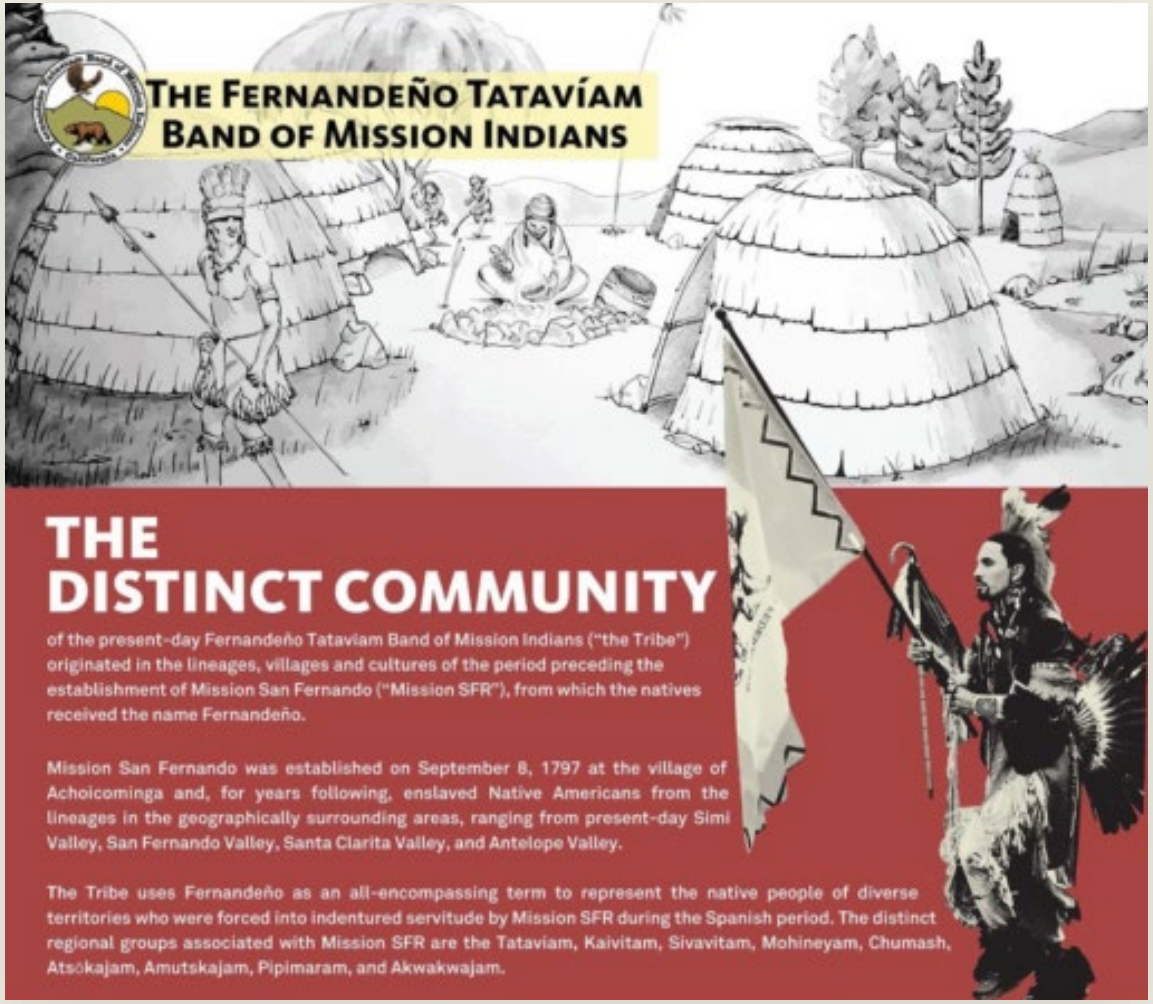


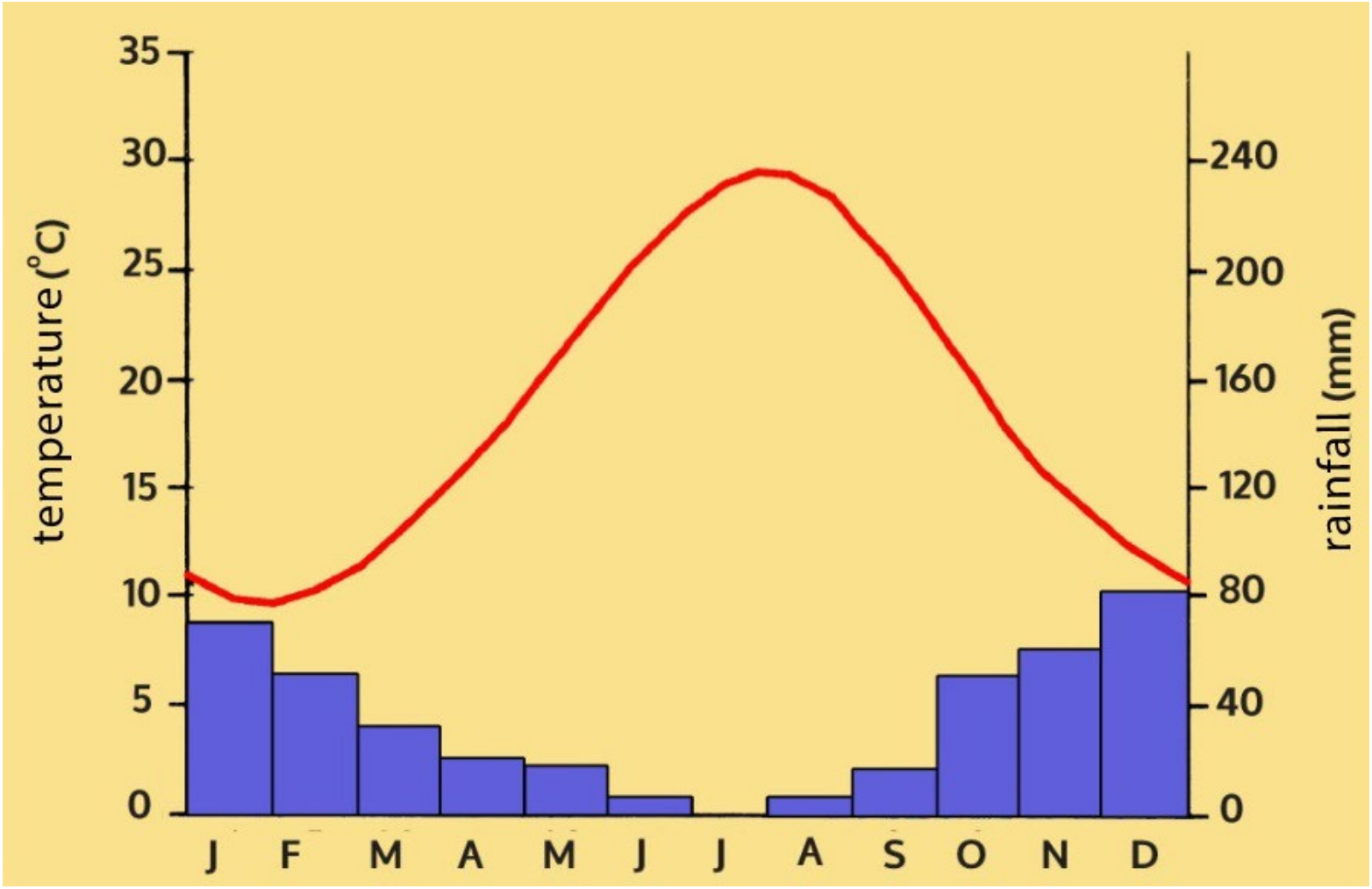
Ecological Restoration

Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.

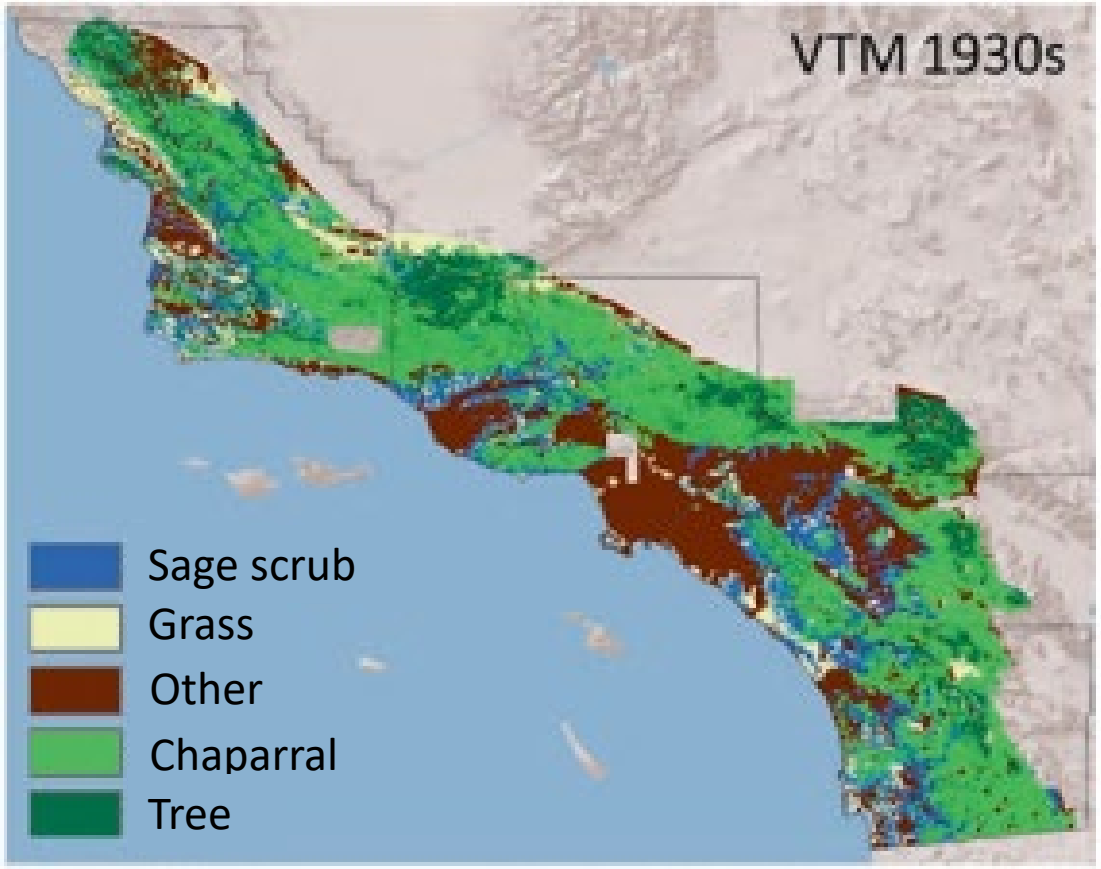
Chaparral

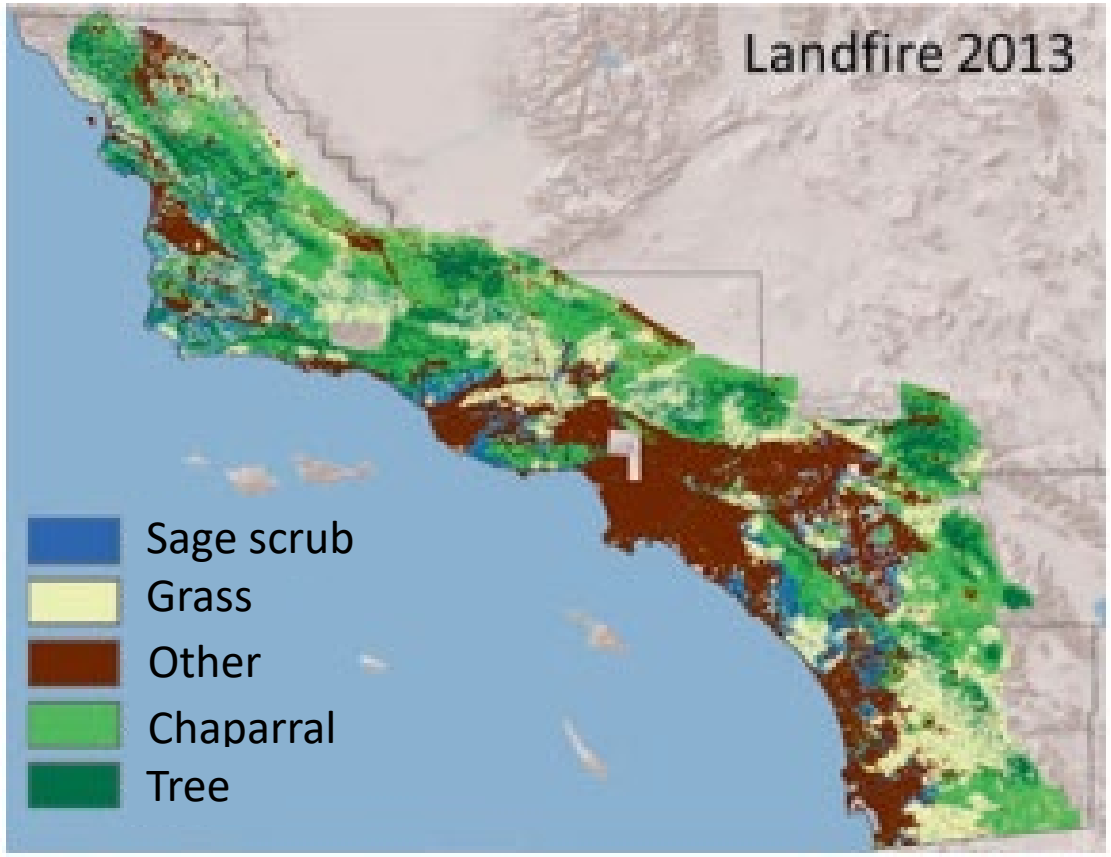
Sage Scrub

Mediterranean Climate



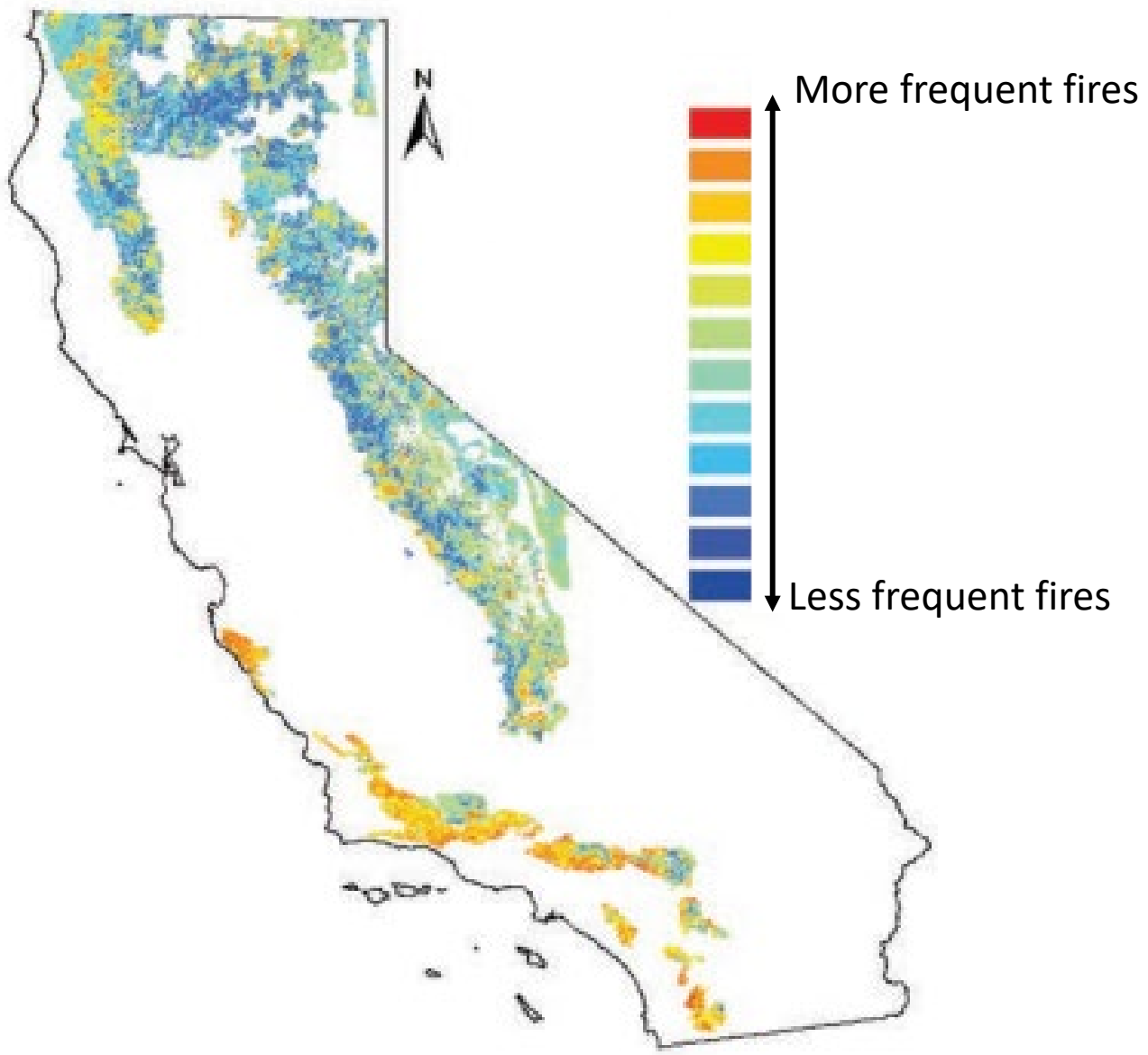
Extensive habitat loss over the last century





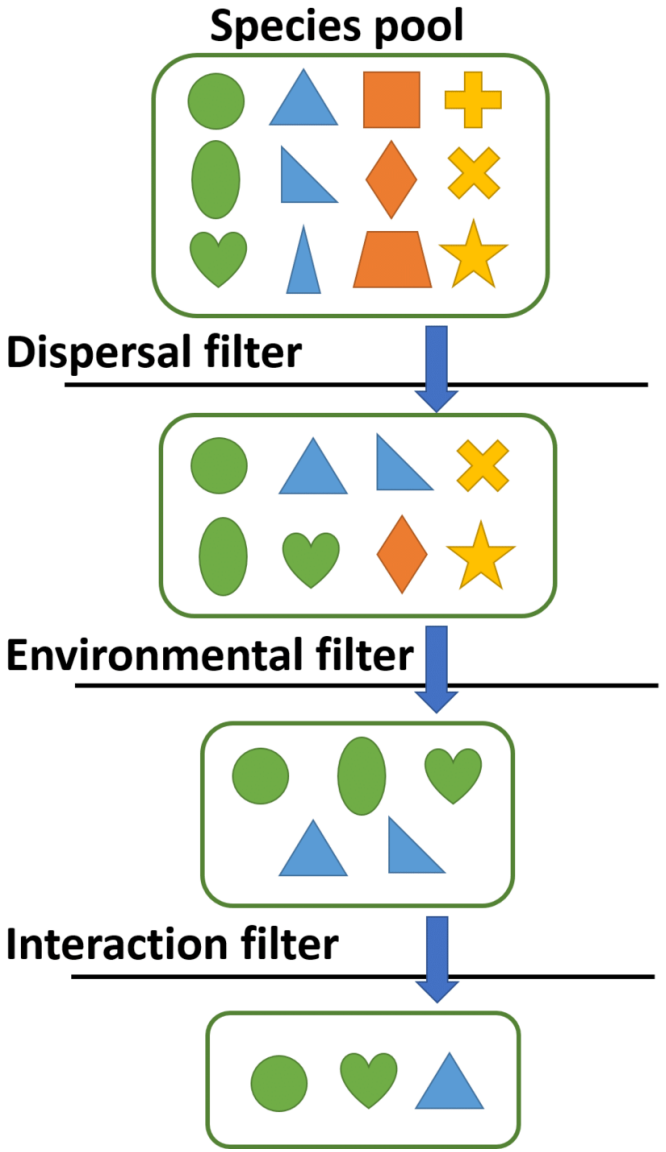
Syphard et al. 2018

Much more frequent fires in southern California

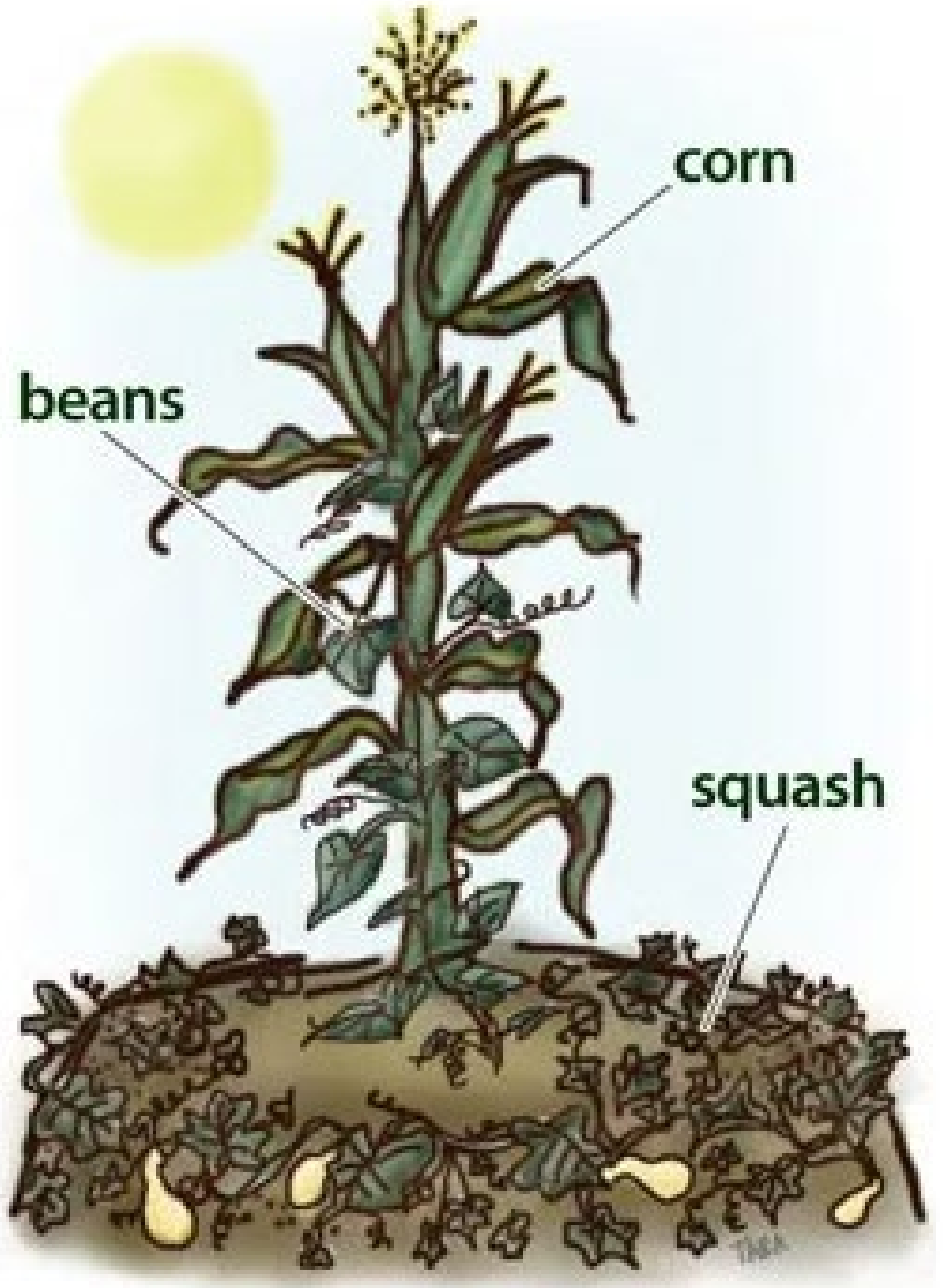


Safford and Van de Water 2014

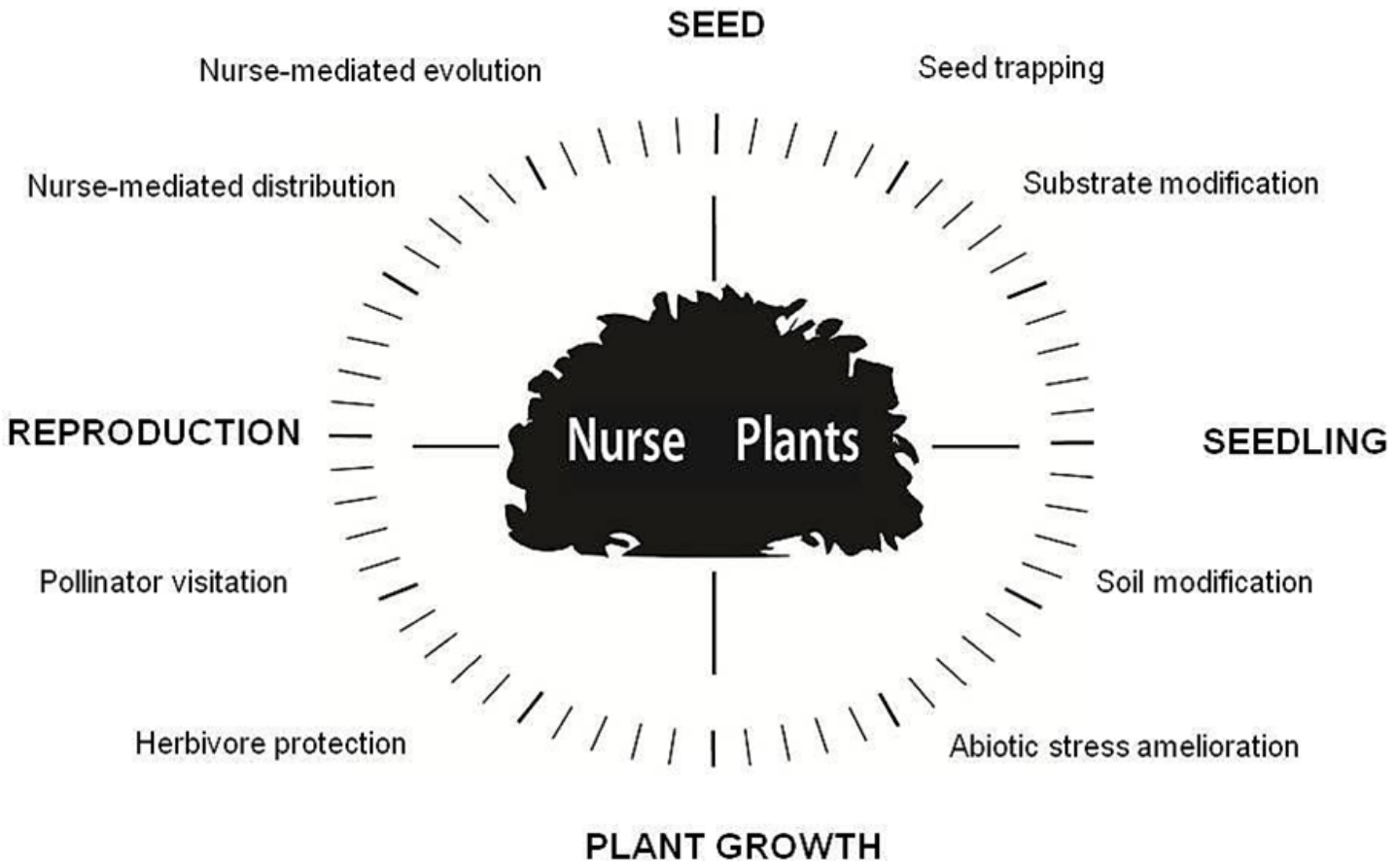
Traditional Competition Theory



The Three Sisters



Incorporating facilitation

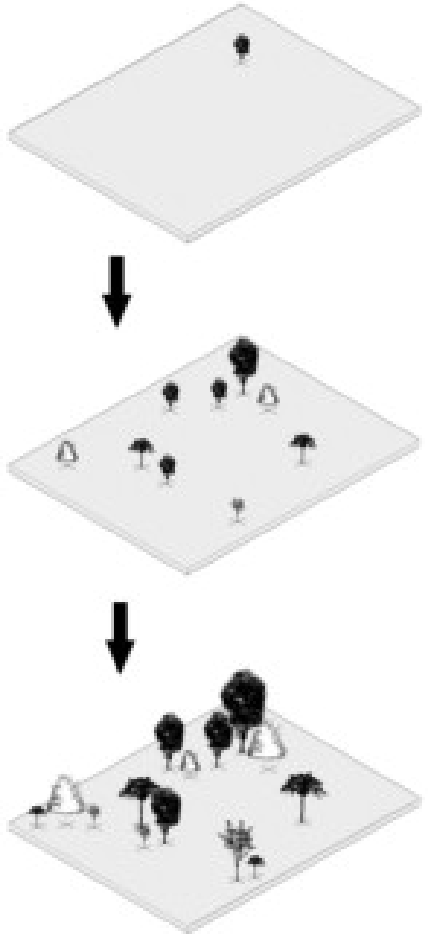


Filazzola, 2013

Nucleation

Ademir Reis

Karen Holl



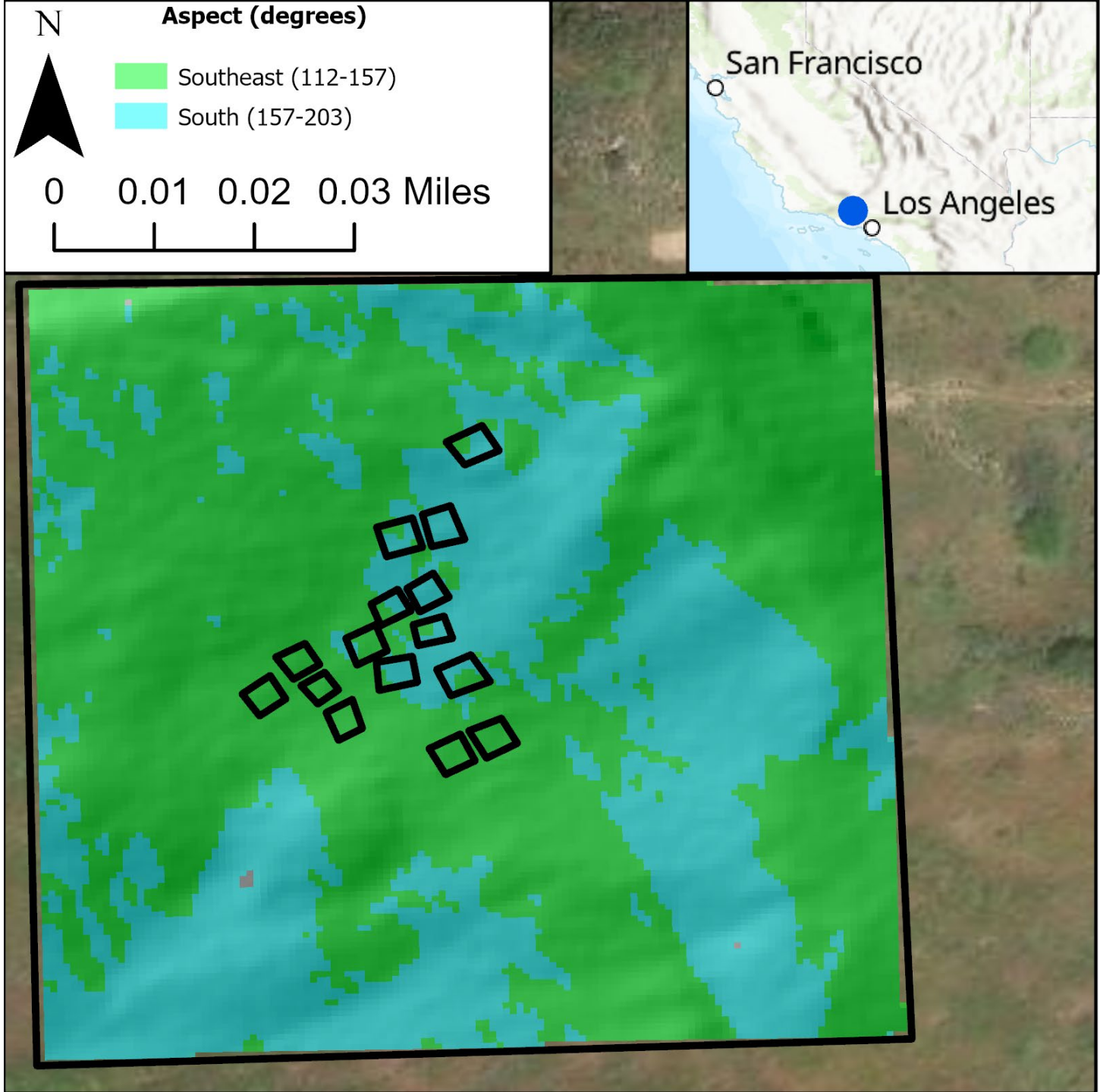
Corbin & Holl, 2012

Lord of the Flies or Neverland?

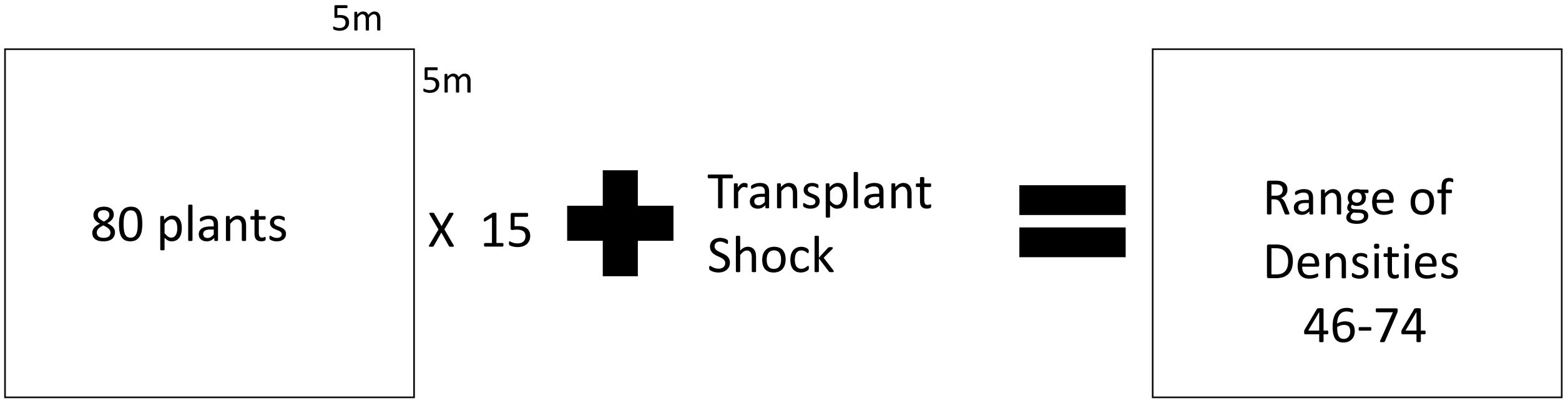
Understanding Biotic Interactions

- **Does increasing native shrub density facilitate the survival of other seedlings?**
    - Plot level survival will increase with higher planting densities.

Study Site: Piru, Ca



Methods: Experimental Design



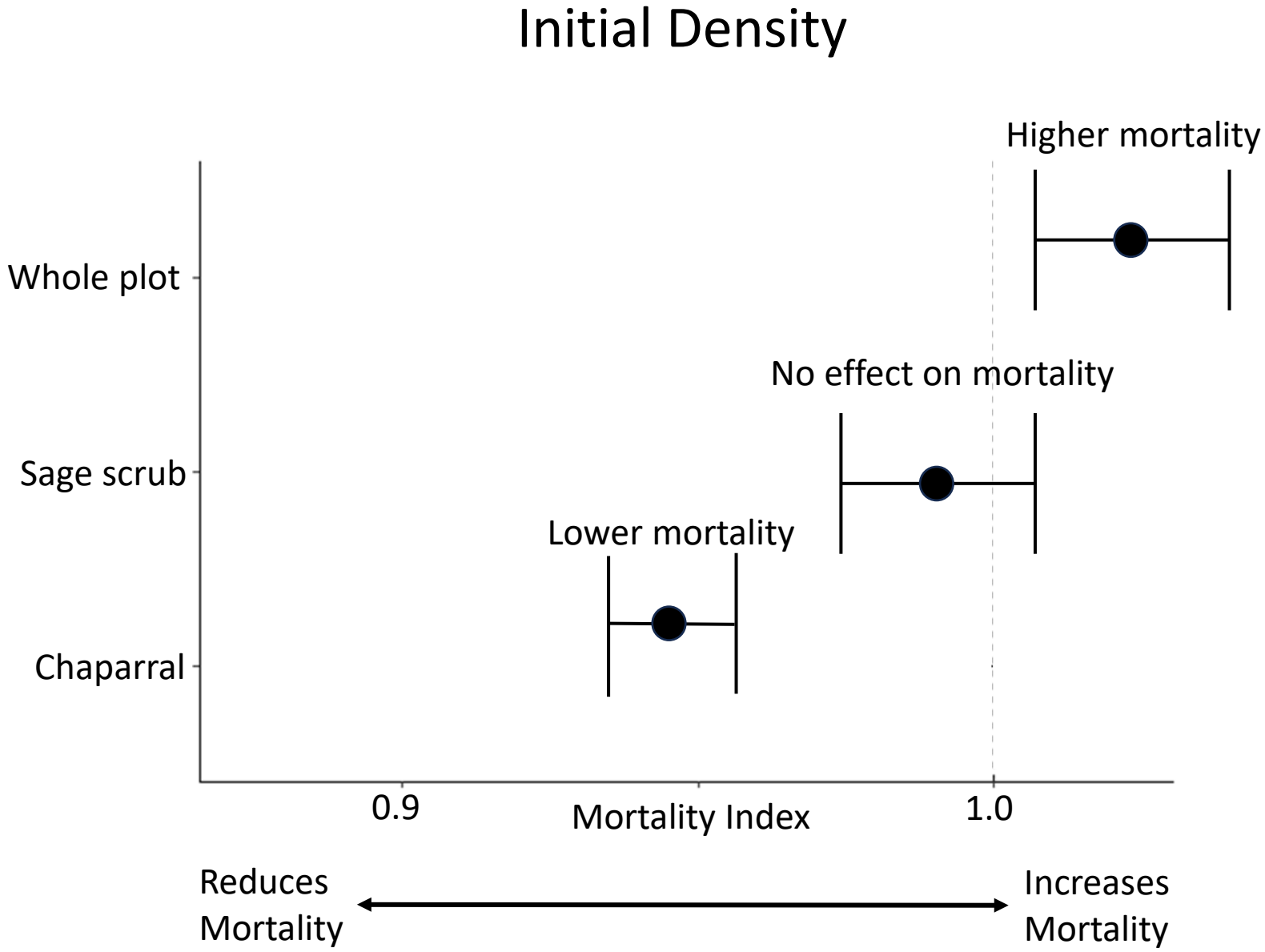
Monthly Measurements:

- Survival
- Soil moisture (5 random locations per plot)
- Ambient and plot sun exposure (5 random locations per plot)


WATER

Better Survival with Higher Initial Density

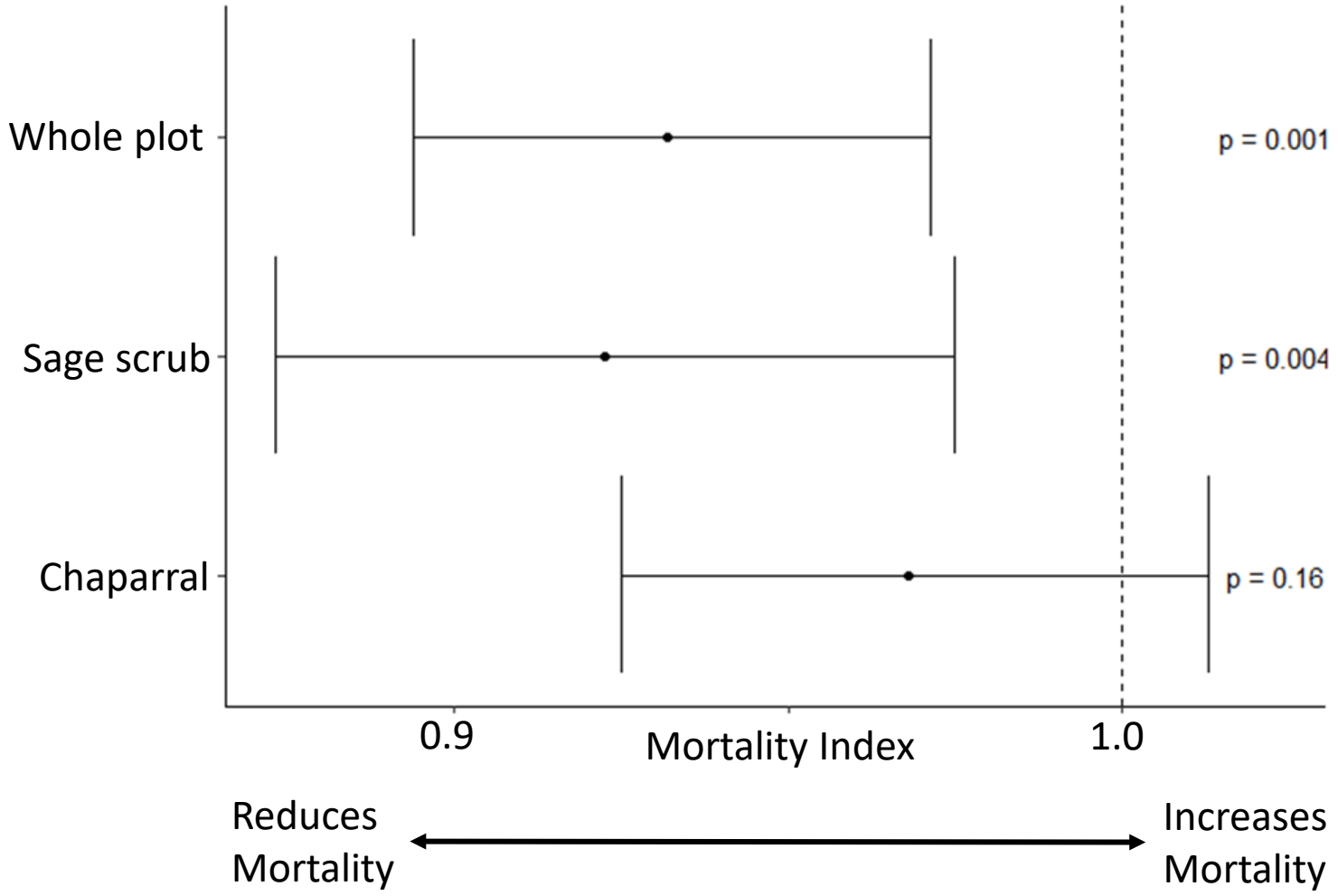
Cox proportional hazards model
Plot as random intercept



Initial Density

Better Survival with Higher Initial Density

Cox proportional hazards model
Plot as random intercept



Including Environmental Conditions

Look at my Pretty Plants

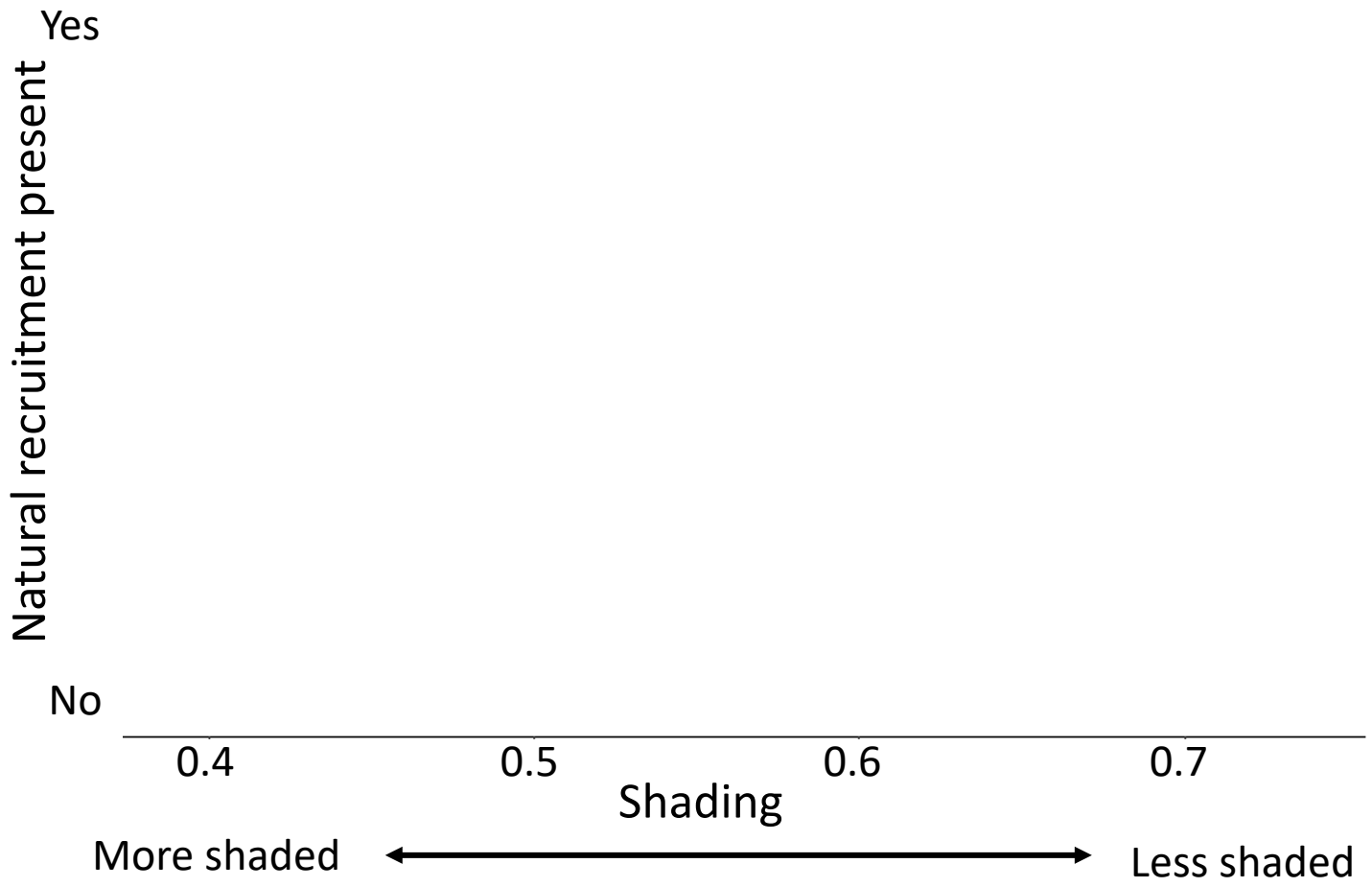
Understanding Biotic Interactions

- **Does increasing native shrub density facilitate the survival of other seedlings?**
  - Consistent benefit of planting density

- **Does higher native cover enable natural regeneration?**
  - Higher native cover facilitates natural germination and survival
  - Higher native cover excludes non-native grasses

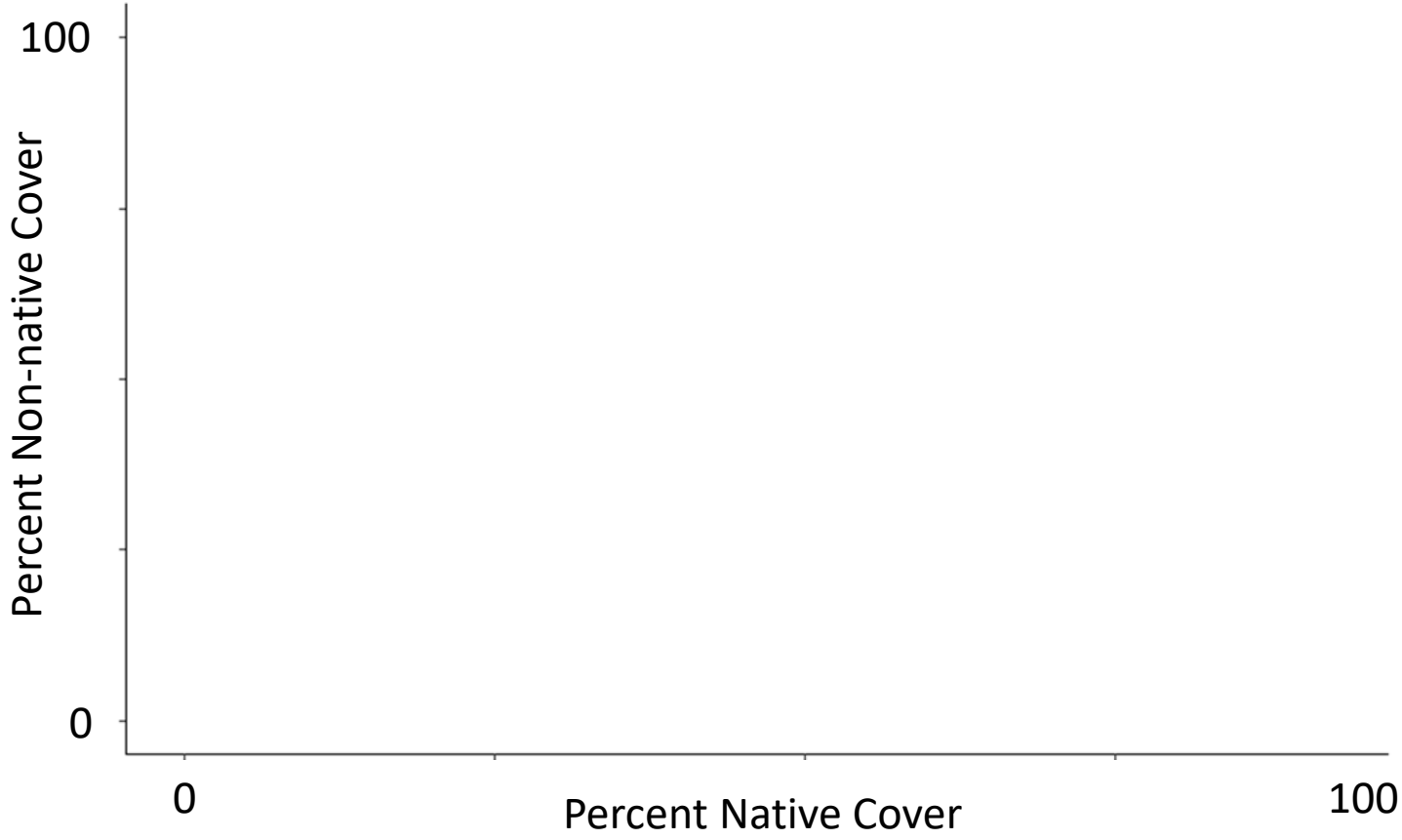
Seedling recruitment correlates to shading, but not soil moisture

Generalized linear model
binomial



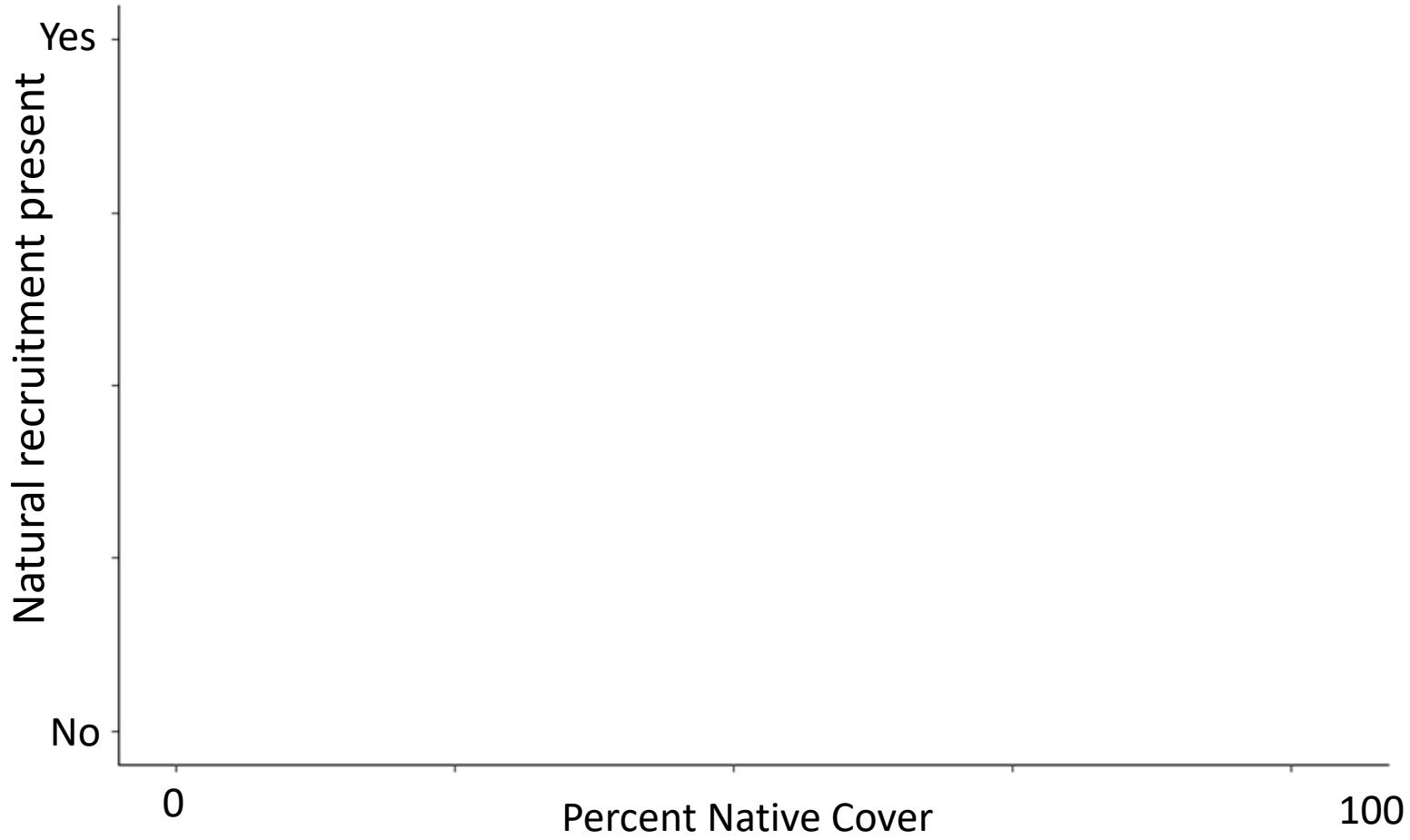
Native cover suppresses non-native cover

Generalized linear model
gamma



Natural recruitment occurs with higher native cover

Generalized linear model
binomial



Look at my Pretty Plants

Understanding Biotic

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